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12 *Attorneys for New Jersey and Lead Counsel for the Class*

13 **UNITED STATES DISTRICT COURT**
14 **CENTRAL DISTRICT OF CALIFORNIA**
15 **SOUTHERN DIVISION**

16 IN RE STEC, INC. SECURITIES
17 LITIGATION
18 _____
19 This Document Relates To:
20 _____
21 ALL ACTIONS
22 _____
23
24
25
26
27
28

No. SACV 09-01304-JVS (MLGx)

**DECLARATION OF JOHN D.
FINNERTY, Ph.D. IN SUPPORT
OF LEAD PLAINTIFF'S
MOTION FOR CLASS
CERTIFICATION**

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1 I, John D. Finnerty, declare pursuant to 28 U.S.C. § 1746, as follows:

2 **I. Qualifications**

3 1. My name is John D. Finnerty. I am a Professor of Finance and the
4 founding Director of the Master of Science in Quantitative Finance Program in the
5 Graduate School of Business Administration at Fordham University. I was
6 awarded early tenure in 1991, and received the Gladys and Henry Crown Award
7 for Faculty Excellence in 1997. I have published fourteen books, including
8 *Corporate Financial Management*, 4th ed., *Principles of Financial Management*,
9 and *Debt Management*, and more than 100 articles and professional papers with
10 respect to corporate finance, fixed income, and business and securities valuation. I
11 have served as the Chair of the Trustees, President, and Director, and I am
12 currently a Trustee, of the Eastern Finance Association, an academic finance
13 organization. I am also a Director of the Financial Management Association. I
14 have also served as the President and Director of the Fixed Income Analysts
15 Society, an association of finance professionals based in New York City. I am a
16 former editor of *Financial Management*, one of the leading academic finance
17 journals, and a former editor of *FMA Online*. I am a member of the editorial board
18 of the *Journal of Portfolio Management* and the *International Journal of Portfolio*
19 *Analysis & Management*. I was inducted into the *Fixed Income Analysts Society*
20 *Hall of Fame* in 2011.

21 2. My teaching and research deal mainly with corporate finance,
22 investment banking, and fixed income securities valuation and portfolio
23 management. I have previously published a paper on the calculation of damages in
24 securities fraud cases entitled, "An Improved Two-Trader Model for Measuring
25 Damages in Securities Fraud Class Actions," which was published in the Spring
26 2003 issue of the Stanford Journal of Law, Business & Finance. I have extensive
27 experience testing for market efficiency, performing loss causation analysis, and
28 calculating damages in securities fraud cases.

1 3. I am also a Managing Principal at Finnerty Economic Consulting,
2 LLC (FinnEcon®), which provides financial consulting and valuation services to
3 law firms, corporations, industry associations, and government agencies.

4 4. Prior to forming FinnEcon® in 2003, I was a Managing Principal at
5 Analysis Group, Inc., an economic consulting firm. Prior to joining Analysis
6 Group, I was a Partner (non-audit) in the PricewaterhouseCoopers Financial
7 Advisory Services Group for five years, and previously held investment banking
8 positions at Morgan Stanley, Lazard Frères, McFarland Dewey, and Houlihan
9 Lokey Howard & Zukin.

10 5. I received a Ph.D. in Operations Research from the Naval
11 Postgraduate School, an M.A. in Economics from Cambridge University where I
12 was a Marshall Scholar, and a B.A. in Mathematics from Williams College.
13 Attached as Appendix A is a true and correct copy of my current resume, which
14 lists all publications I have written or co-authored and includes a brief description
15 of my trial and deposition testimony within at least the past four years.

16 6. My firm is being compensated at a rate of \$695 per hour for my work
17 on this matter, and my compensation is not contingent on my findings or on the
18 outcome of this matter. Some of the analyses in this declaration have been
19 performed by my staff working under my direction.

20 7. Appendix B lists the documents I considered in coming to my
21 opinions in this matter.

22 **II. Assignment**

23 8. Labaton Sucharow LLP ("Labaton") and Lite DePalma Greenberg,
24 LLC ("Lite DePalma"), lead counsel for the plaintiffs in this matter, have asked me
25 to conduct appropriate studies and opine on the efficiency of the market for the
26 common stock of STEC, Inc. ("STEC" or the "Company") during the period
27 extending from June 16, 2009 through February 23, 2010 (the "Class Period").
28

III. Summary of Opinions

9. I have reached the opinion, after conducting appropriate studies, the results of which are described in this declaration, that the market for the common stock of STEC was open, developed, and efficient during the Class Period. This opinion is based on the results of the market efficiency tests described in this declaration.

IV. Efficiency of the Market for STEC's Common Stock

10. An efficient market is one in which "security prices fully reflect all available information."¹ Stock price movements take place only after someone, on the basis of new information, is able to better assess the value of the asset.² There are three versions of the Efficient Market Hypothesis ("EMH").³ The weak form of the EMH states that prices reflect all information contained in past trading in the market. The semi-strong form of the EMH holds that stock prices reflect all publicly available information. This is the form of the EMH adopted by the Supreme Court in Basic.⁴ The strong form of the EMH states that stock prices reflect all public and private information. There is little evidence that the strong form of the EMH holds, and it would be surprising if insiders with possession of material non-public information could not earn abnormal trading profits.⁵

11. The focus of my declaration is on the semi-strong form of the EMH, which is the most widely accepted characterization of what is meant by an

¹ Elton, Edwin J., Martin J. Gruber, Stephen J. Brown, and William N. Goetzmann, Modern Portfolio Theory and Investment Analysis, 6th ed., John Wiley & Sons, Inc., Hoboken, NJ, 2003, page 402.

² Emery, Douglas R., John D. Finnerty, and John D. Stowe, Corporate Financial Management, 4th ed., Wohl Publishing, Morristown, NJ, 2011, page 452.

³ Fama, Eugene, "Efficient Capital Markets: A Review of Theory and Empirical Work," *Journal of Finance*, 25, March 1970, pages 383-417.

⁴ Basic Incorporated, et al., Petitioners v. Max L. Levinson et al., 485 U.S. 224 (1988).

⁵ Jaffe, Jeffrey, "Special Information and Insider Trading," *Journal of Business*, 47, July 1974, pages 410-428, and Lorie, James, and Victor Niederhoffer, "Predictive and Statistical Properties of Insider Trading," *Journal of Law and Economics*, 11, April 1968, pages 91-103.

1 “efficient market” in the securities industry and in academia. If a security’s price
2 reflects all public information, an investor can rely on it as the market’s consensus
3 of the security’s fair value. Judge Alfred J. Lechner, Jr., in Cammer v. Bloom,⁶
4 cited commentators Bromberg & Lowenfels⁷ (“Bromberg”) in defining certain key
5 terms related to market efficiency in the context of a stock traded other than on the
6 New York Stock Exchange where trading is subject to overall capitalization
7 requirements and other indicia suggesting market efficiency:

- 8 • An open market is one in which anyone, or at least a large number of
9 persons, can buy or sell.
- 10 • A developed market is one which has a relatively high level of activity
11 and frequency, and for which trading information (e.g., price and
12 volume) is widely available. It is principally a secondary market in
13 outstanding securities. It usually, but not necessarily, has continuity and
14 liquidity (the ability to absorb a reasonable amount of trading with
15 relatively small price changes).
- 16 • An efficient market is one which rapidly and accurately reflects new
17 information in the security’s price.

18 These terms are cumulative in the sense that a developed market will almost
19 always be an open one, and an efficient market will almost invariably be a
20 developed one.⁸

21 12. The Cammer Court described five factors which should be considered
22 in determining whether a market for a specific security is efficient:

- 23 a. the stock’s average trading volume;

26 ⁶ Cammer v. Bloom, 711 F. Supp. 1264 (D.N.J. 1989).

27 ⁷ *Ibid.* at 1276, citing Bromberg & Lowenfels, 4 Securities Fraud and
Commodities Fraud, § 8.6, August 1988.

28 ⁸ *Ibid.*

- 1 b. the number of securities analysts who follow and report on the
2 stock;
3 c. the presence of market makers and arbitrageurs;
4 d. the company's eligibility to file a Form S-3 Registration
5 Statement; and
6 e. a cause-and-effect relationship, over time, between unexpected
7 corporate events or financial news releases and an immediate response in stock
8 price.⁹

9 13. It is my opinion that the Cammer factors are consistent with the
10 economics literature and that they provide valuable insight into whether the market
11 for a security is efficient.¹⁰ Cammer Factor Five is especially important because it
12 relates directly to the definition of an efficient market. I examined each of these
13 factors for the market for STEC's common stock during the Class Period.

14 14. In addition to the Cammer factors, I also considered the three
15 supplemental tests cited in Elmer Krogman v. R. Dale Sterritt, Jr.¹¹ to examine the
16 market efficiency for a security:

- 17 a. the company's total market capitalization;
18 b. the stock's bid-ask spread; and
19 c. the stock's public float.

20 15. Additionally, I analyzed whether put-call parity held throughout the
21 Class Period and tested whether the price of STEC's common stock followed a
22 random walk during the Class Period. Put-call parity should hold, at least to a
23 close approximation, and STEC's stock price movements should follow a random
24 walk if the market for STEC's common stock is efficient. Put-call parity is a
25

26 ⁹ Cammer, at 1286-1287.

27 ¹⁰ Barber, Brad M., Paul A. Griffin, and Baruch Lev, "The Fraud-on-the-Market
28 Theory and the Indicators of Common Stocks' Efficiency," *Journal of Corporation
Law*, 19, Winter 1994, pages 285-312.
202 F.R.D. 467 (N.D. Tex. 2001)

1 mathematical relationship between the price of a company's common stock and the
2 prices of its call and put options, which holds when all those instruments are
3 accurately priced. The random walk model suggests that, in an efficient market,
4 stock price movements are independent and the returns on the stock are identically
5 distributed over time.¹²

6 16. The Elmer Krogman tests, the put-call parity tests, and the random
7 walk tests, taken in conjunction with the Cammer factors, collectively facilitate a
8 thorough assessment of whether the market for STEC's common stock was
9 efficient during the Class Period.

10 A. Application of the Cammer Factors to the Market for STEC's
11 Common Stock

12 1. Cammer Factor One: Weekly Trading Volume

13 17. High trading volume is indicative of an efficient market. As stated in
14 Cammer:

15 The reason the existence of an actively traded market, as
16 evidenced by a large weekly volume of stock trades,
17 suggests there is an efficient market is because it implies
18 significant investor interest in the company. Such
19 interest, in turn, implies a likelihood that many investors
20 are executing trades on the basis of newly available or
21 disseminated corporate information.¹³

22 According to Bromberg, "Turnover measured by average weekly trading of 2% or
23 more of the outstanding shares would justify a strong presumption that the market
24 for the security is an efficient one; 1% would justify a substantial presumption."¹⁴

25
26 ¹² Elton, Edwin J., Martin J. Gruber, Stephen J. Brown, and William N.
27 Goetzmann, Modern Portfolio Theory and Investment Analysis, 6th ed., John
28 Wiley & Sons, Inc., Hoboken, NJ, 2003, page 405.

¹³ Cammer at 1286.

¹⁴ *Ibid.* at 1286, citing Bromberg, et al.

1 18. During the Class Period, STEC's common stock was listed on the
2 NASDAQ Global Select Market, which was formerly part of the NASDAQ
3 National Market.¹⁵ It is the tier of the NASDAQ market with the largest, most
4 liquid NASDAQ stocks.¹⁶ The average weekly reported trading volume for
5 STEC's common stock was 12,053,008 shares. (See Exhibits A and B.) STEC's
6 weekly trading volume averaged 48.24% of shares outstanding, which provides a
7 strong presumption of a liquid and efficient market. In addition, the examination
8 of weekly historical turnover ratios indicates that the volume of trading was large
9 enough each week during the Class Period to support an efficient market for
10 STEC's common stock.

11 19. The annualized turnover ratio is the annual reported trading volume
12 divided by the number of shares outstanding. A total of 910,169,030 STEC shares
13 traded during the Class Period, and the average number of STEC shares
14 outstanding during the Class Period was 49,783,803 shares. Since the Class Period
15 spans 0.69 years, the annualized turnover ratio was 2637.58%. (See Exhibit B.) In
16 comparison, the average annualized turnover ratio for NASDAQ-listed common
17 stocks was 484.5% between 2005 and 2010.¹⁷ (See Exhibit C.) STEC's high
18 turnover ratio, which greatly exceeds the NASDAQ average, justifies a strong
19 presumption that the market for STEC's common stock was efficient during the
20 Class Period.

21
22 ¹⁵ The NASDAQ stock market classifies its listings into three market tier
23 designations, the NASDAQ Global Select Market, the NASDAQ Global Market
24 (formerly the NASDAQ National Market), and the NASDAQ Capital Market
25 (formerly the NASDAQ SmallCap Market). STEC was listed on the NASDAQ
26 Global Select Market which consists of "companies that meet the most stringent
27 initial financial listing standards ever set by a stock market." The NASDAQ
28 Global Select Market makes up "approximately one third of NASDAQ listings."
NASDAQ Global Select Fact Sheet,
http://www.nasdaq.com/newsroom/presskit/reports/NASDAQ_Global_Select_Fact_sheet.pdf, last accessed 11/15/2011.

27 ¹⁶ *Ibid.*
28 ¹⁷ NASDAQ annual turnover rates were obtained from World Federation of
Exchanges, www.world-exchanges.org, last accessed 11-14-2011.

2. Cammer Factor Two: Stock Analyst Coverage

20. Securities analysts play a critical role in promoting the efficiency of the securities markets. Analysts devote substantial amounts of time and resources to collecting and assessing information regarding the companies they follow. Their ability to provide sophisticated analysis and convey new information and their conclusions as to its implications for investors in the market for a stock improves the speed and accuracy with which market prices adjust to reflect new information. Within twenty-four hours of a company's earnings release, many stock analysts in an efficient market will have disseminated in-depth research reports.

21. During the Class Period, at least 28 securities firms had stock analysts that covered the Company and its common stock.¹⁸ (See Exhibit D.) Deutsche Bank Securities, Inc., J.P. Morgan, Oppenheimer & Co., Stifel Nicolaus, and Thomas Weisel Partners are some of the firms that had analysts who followed STEC.

22. The regular availability of stock analyst research reports from leading broker-dealers who covered STEC during the Class Period, is evidence that the market for STEC's common stock was efficient during the Class Period.

23. In addition, STEC issued regular press releases during the Class Period, made regular securities filings with the Securities and Exchange Commission ("SEC"), and held regular analyst conference calls; STEC received regular press coverage throughout the Class Period, and information concerning STEC was widely disseminated throughout the Class Period through Bloomberg and other news services.

¹⁸ Based on the actual stock analyst and rating agency reports issued during the Class Period and obtained through Investext and Capital IQ, the analysts reported as attending STEC securities analyst conference calls, and analysts quoted in news stories about the performance of STEC.

1 **3. Cammer Factor Three: Existence of Market Makers,**
2 **Institutional Investors, and Arbitrageurs**

3 24. STEC's common stock was listed on the NASDAQ during the entire
4 Class Period.¹⁹ During this period, numerous financial entities were actively
5 buying and selling STEC's common stock. As disclosed in Schedule 13-F filings,
6 shares representing between 59 and 96 percent of STEC's shares outstanding were
7 held by institutional investors during the Class Period.²⁰ (See Exhibit E.) These
8 institutions actively adjusted their holdings of STEC's common stock. The sum of
9 the absolute values of the quarterly changes in securities held by each individual
10 institutional shareholder ranged from 4.9 million shares to 14.2 million shares
11 during the Class Period. Schedule 13-F filings report the holdings of institutional
12 investors on one day in each calendar quarter, which can significantly understate
13 the total volume of trading by these institutional shareholders by failing to account
14 for instances where institutional shareholders bought and sold shares during the
15 respective periods. Thus, my estimation of the volume of institutional trading in
16 STEC's common stock is conservative. High levels of institutional ownership and
17 the active trading by these holders is further evidence that the market for STEC's
18 common stock was efficient during the Class Period.

19 25. There is evidence that numerous financial entities were actively
20 buying and trading STEC's common stock during the Class Period. According to
21 Bloomberg, there were 70 active market makers for STEC's common stock
22

23 ¹⁹ The NASDAQ stock market classifies its listings into three market tier
24 designations, the NASDAQ Global Select Market, the NASDAQ Global Market
25 (formerly the NASDAQ National Market), and the NASDAQ Capital Market
26 (formerly the NASDAQ SmallCap Market). STEC was listed on the NASDAQ
27 Global Select Market which consists of "companies that meet the most stringent
28 initial financial listing standards ever set by a stock market." The NASDAQ
Global Select Market makes up "approximately one third of NASDAQ listings."
NASDAQ Global Select Fact Sheet,
http://www.nasdaq.com/newsroom/presskit/reports/NASDAQ_Global_Select_Fact_sheet.pdf, last accessed 11/15/2011.

²⁰ Thomson Reuters and STEC Forms 10-K and 10-Q.

1 between June 2009 and February 2010 with trading volumes in excess of one
2 million shares.²¹ (See Exhibit F.) The large number of market makers facilitating
3 trading in STEC's common stock during the Class Period is indicative of a liquid
4 and efficient market for STEC's common stock during this period.

5 **4. Cammer Factor Four: STEC's Eligibility to File SEC Form**
6 **S-3**

7 26. The Securities Act of 1933 requires companies to file registration
8 statements prior to the sale of securities to the public. Form S-3 is a simplified
9 form that allows incorporation by reference of Securities Exchange Act of 1934
10 (the "Exchange Act") reports.²² Form S-3 is available to large, seasoned
11 companies, and an amendment to the eligibility requirements for Form S-3, which
12 was effective January 28, 2008, now allows for smaller companies to file on Form
13 S-3.²³ The primary requirements are that the issuer has filed all materials required
14 under the Exchange Act for at least twelve months and that the public float of the
15 Company's common equity is \$75 million or more. As stated in the SEC release
16 establishing the requirements for S-3 eligibility, "This form is predicated on the
17 Commission's belief that the market operates efficiently for these companies, i.e.,
18 that the disclosure in Exchange Act reports and other communications by the
19 registrant, such as press releases, has already been disseminated and accounted for
20 by the market place."²⁴
21
22

23 ²¹ 21. Bloomberg L.P. According to Bloomberg, there were 70 market
24 makers with trading volumes in excess of one million shares during the Class
25 Period. Bloomberg's list of market makers includes 448 entities, although some
26 reported very low trading volumes.

27 ²² <http://www.sec.gov/about/forms/forms-3.pdf>.

28 ²³ Securities and Exchange Commission, "Revisions to the Eligibility
Requirements for Primary Securities Offerings on Forms S-3 and F-3," Release
No. 33-8878; File No. S7-10-07, December 2007.

²⁴ Cammer, at 1284-1285 citing SEC Securities Act Release No. 6331, 46 Red.
Reg. 41,902, reprinted in Fed. Sec. L. Rep. (CCH) Spec. Regs. No. 926, extra ed.
(Aug. 13, 1981).

1 27. STEC was eligible to file on Form S-3 throughout the Class Period
2 since it was listed on the NASDAQ throughout the Class Period and STEC filed an
3 S-3 on August 3, 2009.

4 **5. Cammer Factor Five: The Relationship between News**
5 **Events and Security Price Changes**

6 28. In evaluating market efficiency, perhaps the most reliable test of
7 market efficiency comes from Cammer Factor Five, the relationship between news
8 events and securities price changes. An efficient market will react to new
9 information that is economically significant. I examined the responsiveness of
10 STEC's common stock price to news events to test whether the market for STEC's
11 common stock was efficient during the Class Period. I performed an event study to
12 investigate this relationship between changes in STEC's common stock price and
13 news events concerning STEC.

14 29. An event study is a standard statistical technique that financial
15 economists use to determine whether a security's price reaction to a news
16 announcement (or some other event) is statistically significant. The event study
17 analyzes the daily return on STEC's common stock, which is the daily percentage
18 change in the price of a share, adjusted for any dividend distributions. In order to
19 focus on the impact of the company-specific news on the price of a security, one
20 calculates a security's abnormal return around the time of the announcement. A
21 security's abnormal return is the difference between the security's actual return and
22 its expected return. A security's expected return is the return one would expect
23 based on general stock market price movements and industry-related factors that
24 are unrelated to the specific event that is being examined, as reflected in the
25 changes in the prices of stocks of firms in the same industry. Once one has
26 calculated a security's abnormal returns, one can use standard statistical tests to
27 determine whether these abnormal returns are statistically significant.
28

30. I calculated the expected return on STEC's common stock by applying the widely accepted Fama-French Three-Factor Model.²⁵ Eugene Fama and Kenneth French developed what is now known as the Fama-French Three-Factor Model in 1993.²⁶ The Fama-French Three-Factor Model expresses the excess return on a common stock on day t (R_t) over the return on Treasury bills that day (R_F) in terms of three key factors. The return on Treasury bills represents the return one would expect on a risk-free investment. This model "has become widely known and adapted."²⁷ The model identifies the following three factors that explain excess stock returns:

- $R_m - R_F$ – the excess return on the equity market portfolio (R_m) over the return on Treasury bills (R_F);²⁸
- SMB ("small minus big") – the difference between the returns on small-capitalization stocks and the returns on large-capitalization stocks; and
- HML ("high minus low") – the difference between the returns on high book-to-market stocks (commonly known as value stocks) and the returns on low book-to-market stocks (commonly known as growth stocks).

31. The regression formula for the Fama-French Three-Factor Model, which is fitted to daily data, is:

$$R_t - R_F = \alpha + \beta(R_m - R_F) + s \text{ SMB} + h \text{ HML} + e \quad (\text{Equation 1})$$

32. The variables $R_m - R_F$, SMB, and HML are defined above. The coefficients β , s , and h measure the contributions of the respective factors to the

²⁵ Fama, Eugene F., and Kenneth R. French, "Common Risk Factors in the Returns on Stocks and Bonds," *Journal of Financial Economics*, 33, 1993, pages 3-56.

²⁶ *Ibid.*

²⁷ Emery, Douglas R., John D. Finnerty, and John D. Stowe, *Corporate Financial Management*, 4th ed., Wohl Publishing, Morristown, NJ, 2011, page 191.

²⁸ The equity market portfolio return, R_m , represents the value-weighted return on all NYSE, AMEX and NASDAQ stocks.

1 excess return on the stock, $R_t - R_F$. A positive coefficient suggests a direct
2 relationship between that factor and the return on the analyzed stock. The larger
3 the coefficient, the more responsive the stock's return will be to that factor on any
4 given day. The Fama-French Three-Factor Model has become widely accepted for
5 event study analysis.²⁹ It is a significant improvement over the (unadjusted)
6 Capital Asset Pricing Model ("CAPM") because it prices the risks associated with
7 small firm size and financial distress.³⁰ Morningstar's Cost of Capital Yearbook,
8 which is widely relied upon for historical rate of return data in the investment
9 management industry, uses the Fama-French Three-Factor Model, among other
10 models, to calculate the cost of equity capital for firms in various industries.³¹

11 33. Controlling for industry factors that can affect the price of a
12 company's stock is appropriate in an event study, as several articles in the
13 academic and professional literature have previously noted.³² Indeed, academic
14 research has pointed out the importance of making sure that estimates of returns to
15

16 ²⁹ See, for example, Boehme, Rodney D., and Sorin M. Sorescu, "The Long-run
17 Performance Following Dividend Initiations and Resumptions: Underreaction or
18 Product of Change," *Journal of Finance*, 57, 2002, pages 871-900, and Ang, James
19 S., and Shaojun Zhang, "An Evaluation of Testing Procedures for Long Horizon
Event Studies," *Review of Quantitative Finance and Accounting*, 23, 2004, pages
251-274.

20 ³⁰ Emery, Douglas R., John D. Finnerty, and John D. Stowe, *Corporate Financial
Management*, 4th ed., Wohl Publishing, Morristown, NJ, 2011, page 192.

21 ³¹ Morningstar, *Cost of Capital 2007 Yearbook*, 2007, page 23.

22 ³² Tabak, David I. and Frederick C. Dunbar, "Materiality and Magnitude: Event
Studies in the Courtroom," in Roman L. Weil, Michael J. Wagner, and Peter B.
Frank, eds., *Litigation Services Handbook*, 3rd ed., Wiley, New York, 2001,
chapter 19. See also Alexander, Janet C., "The Value of Bad News," *UCLA Law
Review*, 41, August, 1994, pages 1421-69; Jonathan R. Macey, Geoffrey P. Miller,
Mark L. Mitchell, and Jeffry M. Netter, "Lessons from Financial Economics:
Materiality, Reliance, and Extending the Reach of Basic v. Levinson," *77 Virginia
Law Review Association*, 1017, August 1991, pages 1021-28; A. Craig MacKinlay,
"Event Studies in Economics and Finance," *Journal of Economic Literature*, 35,
March 1997, pages 13-39; Mark L. Mitchell and Jeffry M. Netter, "The Role of
Financial Economics in Securities Fraud Cases: Applications at the Securities and
Exchange Commission," *The Business Lawyer*, 49, February 1994, pages 545-90;
and Bradford Cornell and R. Gregory Morgan, "Using Finance Theory to Measure
Damages in Fraud on the Market Cases," *UCLA Law Review*, 37, June 1990, pages
883-923.

1 investors on securities are free of the bias that can occur with the omission of an
2 explanatory factor when using a market model, such as the CAPM or the Fama-
3 French Three-Factor Model, to conduct an empirical study.³³

4 34. I modified the Fama-French Three-Factor Model to include the
5 returns on an index of the common stocks of computer storage and peripheral
6 companies to take into account the sensitivity of STEC's common stock price to
7 movements in other computer storage and peripheral companies' stock prices. The
8 regression formula for my Modified Fama-French Three-Factor Model is:

9
$$R_t - R_F = \alpha + \beta(R_m - R_F) + s \text{ SMB} + h \text{ HML} + i \text{ Industry Index} + e \quad (\text{Equation 2})$$

10 35. *Industry Index* is the percentage change in the S&P 500 SmallCap
11 Computer Storage & Peripherals Index. The coefficient *i* measures the
12 contribution of industry-wide factors, as measured by the daily percentage change
13 in the S&P 600 SmallCap Computer Storage & Peripherals Index, to the daily
14 excess returns on STEC's common stock. The members of the S&P 600 SmallCap
15 Computer Storage & Peripherals Index as of June 16, 2009 were: Hutchinson
16 Technology, Inc., Intermec, Inc., Intevac, Inc., Novatel Wireless, Inc., Steel Excel,
17 Inc., and Synaptics, Inc. I used the S&P 600 SmallCap Computer Storage &
18 Peripherals Index because Capital IQ defines the primary industry for STEC and
19 all members of the S&P 600 SmallCap Computer Storage & Peripherals Index as
20 "Computers & Storage and Peripherals."³⁴ In addition, as of December 31, 2009,

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³³ Bartholdy, Jan and Paula Peare, "Unbiased Estimation of Expected Return Using CAPM," *International Review of Financial Analysis*, 2003, pages 69-81. The article specifically mentions the CAPM but its analysis applies equally to the Fama-French Three-Factor Model because that model is really just an extended version of the CAPM. See Brealey, Richard A., Stewart C. Myers, and Franklin Allen, *Principles of Corporate Finance*, 9th ed., McGraw-Hill, New York, 2008, pages 225-227.

³⁴ Capital I.Q.

1 STEC had a similar market capitalization and revenues as the members of the S&P
2 SmallCap Computer Storage & Peripherals Index.³⁵

3 36. I applied the Modified Fama-French Three-Factor Model for every
4 day in the Class Period to test whether the stock market's reactions to STEC's
5 daily news events were statistically significant during the Class Period. (See
6 Exhibit G.) In each case, I used a two-tailed test of statistical significance to test
7 whether the daily abnormal return on STEC's common stock is zero (the null
8 hypothesis) against the alternative that the daily abnormal return is different from
9 zero (the alternative hypothesis).³⁶ I employed a critical significance level of 10%
10 in performing these tests. This critical significance level is consistent with the
11 general practice in the field of financial economics. (See Exhibit H.) I also clearly
12 distinguished in Exhibit G, in reporting the results of the statistical testing, when
13 the abnormal stock return is significantly different from zero at the 1% significance
14 level, 5% level, or 10% level, which is also consistent with the general practice
15 within the field of financial economics.

16 37. I identified news items relevant to STEC during the Class Period to
17 examine the cause-and-effect relationship between news events and the
18 responsiveness of STEC's common stock price. I selected a set of STEC-related
19 announcements that I believed to be economically significant and which include
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21 ³⁵ STEC's market capitalization of \$469.8 million, was within the range market
22 capitalization for the members of the S&P 600 SmallCap Computer Storage &
23 Peripherals Index, which was between \$40.5 million and \$1.1 billion. STEC's
24 latest twelve month revenue of \$354.2 million, was within the range of latest
25 twelve month revenues for the members of the S&P 600 SmallCap Computer
Storage & Peripherals Index which was between \$54.2 million and \$658.2 million.
Source: Capital I.Q.

26 ³⁶ The two-tailed test is conservative because I would normally expect that a
27 corrective disclosure would elicit a negative stock market reaction, in which case
28 the alternative hypothesis is that the abnormal stock market return is less than zero
and a one-tailed test would seem more appropriate. Thus, the two-tailed test with a
10% critical significance level is equivalent to a one-tailed test with a more
conservative 5% critical significance level.

1 many of the most important company news items. I also selected a set of STEC-
2 related announcements from outside the Class Period to compare the market's
3 responsiveness during a control period to its reactions during the Class Period. I
4 then tested STEC's stock price reaction on the news announcement dates for
5 statistical significance. During the Class Period, I identified several dates where I
6 found a cause-and-effect relationship between news events and an immediate
7 response in STEC's common stock price, which is evidence of an efficient market.
8 I describe *below* the stock market's reaction to a selected sample of news
9 announcements concerning STEC during the Class Period, which illustrate this
10 cause-and-effect relationship.

11 **i. June 16, 2009**

12 38. Prior to the start of trading on June 16, 2009, STEC issued a press
13 release announcing that it was increasing its Q2 2009 revenue guidance to \$82-84
14 million.³⁷ The revised revenue guidance represented a \$14 million increase over
15 STEC's previously announced revenue guidance.³⁸ STEC cited increasing sales
16 from STEC's ZeusIOPS solid-state drives as the reason for the improved
17 guidance.³⁹ In addition to announcing an increase in its revenue guidance, STEC
18 also noted that it expected revenue from the ZeusIOPS product line alone to be \$80
19 million for the first half of 2009. This represented an increase from STEC's
20 previous projection of \$65 million.⁴⁰ Later in the day, an Oppenheimer & Co.
21 securities analyst released a report which maintained Oppenheimer & Co.'s
22 "Outperform" rating and raised its price target for STEC to \$30.⁴¹ The securities
23 analyst cited the increased revenue guidance, especially for ZeusIOPS, and the
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25 ³⁷ STEC, Inc., Form 8-K, June 16, 2009.

26 ³⁸ *Ibid.*

27 ³⁹ *Ibid.*

28 ⁴⁰ *Ibid.*

⁴¹ Oppenheimer & Co., "Pre-Announcement Justifies Parabolic Stock - Clear
Visibility on ~\$2 in EPS," June 16, 2009.

1 consequent improved earnings outlook for STEC as the reason for raising the price
2 target and maintaining the "Outperform" rating despite the recent run-up in
3 STEC's stock price.⁴² STEC's improved guidance was economically significant
4 favorable news, which I would expect to elicit a positive stock price reaction. Also
5 during the day, a Capstone Investments securities analyst raised his price target for
6 STEC's stock to \$28 from \$19 citing STEC's higher revenue and earnings
7 guidance and the improved outlook for ZeusIOPS sales to OEMs.⁴³

8 39. I have reviewed the media databases on Bloomberg, Investext, and
9 other news sources for STEC-related news articles published on June 16, 2009. I
10 did not find any additional material news items regarding STEC that received any
11 news coverage that day. As a result of the announcement regarding STEC's
12 revision of its second quarter revenue guidance, STEC's common stock price
13 increased 26.97%. (See Exhibit G.) I applied the Modified Fama-French Three-
14 Factor Model, including the percentage change in the Industry Index as an
15 explanatory variable. On June 16, 2009, the abnormal return resulting from the
16 news announcements was 27.74%, which is statistically significant at the 1% level.
17 Such a significance level means that there is less than a 1 in 100 chance that the
18 abnormal return happened by mere chance.

19 **ii. July 13, 2009**

20 40. Prior to the start of trading on July 13, 2009, STEC announced that it
21 had partnered with a leading defense systems contractor to deploy SSDs to the U.S.
22 military as part of a 12-month, \$28 million supply contract.⁴⁴ According to the
23

24 ⁴² *Ibid.*

25 ⁴³ Capstone Investments, "STEC: More SSD Please – June Guidance Moves
Higher Driven by Higher ZeusIOPS – Reiterate Strong Buy – Target to \$28 from
\$19," June 16, 2009.

26 ⁴⁴ GlobeNewswire, "STEC Announces Major Deployment of Solid State Drives
(SSD) Into U.S. Military Project With \$28 Million Supplier Contract; STEC
27 MACH8 Solid State Drive Utilized in An Advanced Defense System for the U.S.
28 Military, Furthering SSD Adoption Into Military and Aerospace Applications,"
July 13, 2009.

1 announcement, STEC would supply its MACH8 SSD for integration into a
2 platform designed on behalf of the U.S. military. STEC expected shipments would
3 begin during the third quarter of 2009.⁴⁵ Manouch Moshayedi, Chairman and
4 Chief Executive Officer of STEC stated, “we are proud to have been selected to
5 provide our SSDs for use in this military initiative. This contract marks the first
6 major military win for our MACH8 line of SSDs. More significantly this contract
7 win demonstrates that our SSD technologies are adaptable and appropriate for a
8 broad range of industries.”⁴⁶ The contract with the U.S. military for STEC’s
9 MACH8 SSDs and the remarks provided by Manouch Moshayedi were
10 economically significant favorable news, which I would expect to elicit a positive
11 stock price reaction.

12 41. I have reviewed the media databases on Bloomberg, Investext, and
13 other news sources for articles published on July 13, 2009 relating to STEC. I did
14 not find any additional material news items regarding STEC that received any
15 news coverage that day. As a result of the announcement regarding the 12-month,
16 \$28 million supply contract STEC signed with the U.S. military, STEC’s common
17 stock price increased 13.60%. (See Exhibit G.) I applied the Modified Fama-
18 French Three-Factor Model, including the percentage change in the Industry Index
19 as an explanatory variable. On July 13, 2009, the abnormal return resulting from
20 the news announcement was 11.51%, which is statistically significant at the 5%
21 level. Such a significance level means that there is less than a 1 in 20 chance that
22 the abnormal return happened by mere chance.

23 **iii. July 16, 2009**

24 42. Prior to the start of trading on July 16, 2009, STEC announced that it
25 had signed a \$120 million supply contract for ZeusIOPS SSDs for the second half
26

27 ⁴⁵ *Ibid.*

28 ⁴⁶ *Ibid.*

1 of 2009.⁴⁷ As a result of the supply contract, STEC revised its ZeusIOPS SSDs
2 sales forecast to exceed \$220 million in 2009. Later that day, an Oppenheimer &
3 Co. analyst report cited the STEC contract announcement and accordingly revised
4 its earnings forecasts for STEC.⁴⁸ Bloomberg L.P published additional news
5 articles, throughout the day, that repeated the information that STEC had just
6 signed a large contract and had revised its revenue forecast.⁴⁹ The large new
7 contract for its main product was economically significant favorable news, which I
8 would expect to elicit a positive stock price reaction.

9 43. I have reviewed the media databases on Bloomberg, Investext, and
10 other news sources for articles published on July 16, 2009 relating to STEC. I did
11 not find any additional material news items regarding STEC that received any
12 news coverage that day. As a result of the announcement regarding the \$120
13 million supply contract STEC signed, STEC's common stock price increased
14 15.22%. (See Exhibit G.) I applied the Modified Fama-French Three-Factor
15 Model, including the percentage change in the Industry Index as an explanatory
16 variable. On July 16, 2009, the abnormal return resulting from the news
17 announcement was 14.70%, which is statistically significant at the 1% level. Such
18 a significance level means that there is less than a 1 in 100 chance that the
19 abnormal return happened by mere chance.

20 **iv. August 3-4, 2009**

21 44. Shortly after the market closed on August 3, 2009, STEC filed a
22 prospectus for the sale of 7.5 million common shares in a secondary offering.⁵⁰
23

24 ⁴⁷ Bloomberg L.P., "STEC Signs a \$120M Supply Pact for ZeusIOPS SSDs for
25 2H 2009," July 16, 2009 and Bloomberg L.P., "STEC Sees Sales of SSDs to
26 Exceed \$220M in 2009," July 16, 2009.

⁴⁸ Oppenheimer & Co., "Bringing Out the Big Gun – 2H Contract Ups
27 Visibility, Ests, PT, Everything," July 16, 2009.

⁴⁹ Bloomberg L.P., "STEC Signs a \$120M Supply Agreement for ZeusIOPS
28 SSDs, Sees Higher Revenue," July 16, 2009.

⁵⁰ STEC, Inc., Form 424B3, filed August 3, 2009.

1 Such an announcement of significant share sales by insiders is generally
2 considered negative news, which leads to investor share sales.⁵¹ In addition, a
3 Capstone Investments securities analyst, who was one out of 28 analysts covering
4 STEC, downgraded STEC's stock from "Buy" to "Hold."⁵²

5 45. However, also after the market closed on August 3, 2009, STEC filed
6 its 2009 second quarter Form 10-Q and held an earnings conference call with
7 investors and securities analysts. STEC reported second quarter revenue of \$86.4
8 million, which was slightly above its previously raised guidance of \$82 million to
9 \$84 million and the analysts' consensus of \$83 million.⁵³ STEC reported GAAP
10 earnings per share of \$0.38, which was above the analysts' mean consensus for
11 GAAP earnings per share of \$0.28.⁵⁴ The earnings release also reiterated
12 information from the July 16 announcement, which stated that during the second
13 quarter, STEC had signed a "120 million contract to supply ZeusIOPS SSDs to a
14 major Enterprise-Storage customer for the second half of 2009."⁵⁵ In addition,
15 STEC's 10-Q and offering prospectus both filed after the market closed on August
16 3 stated that it expected growth in its sales of ZeusIOPS through the end of 2009 to
17 its major OEM customers based on "accelerated adoption of our ZeusIOPS SSDs
18 by most of our major Enterprise-Storage and Enterprise-Server OEM customers
19 into their systems."⁵⁶

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21

22 ⁵¹ Seyhun, H. Nejat, "Insiders' Profits, Costs of Trading, and Market
23 Efficiency," *Journal of Financial Economics*, 16, June 1986, pages 189-212 and
24 Inci, A. Can, Biao Lu, and H. Nejat Seyhun, "Intraday Behavior of Stock Prices
and Trades around Insider Trading," *Financial Management*, Spring 2010, pages
323-363.

25 ⁵² Capstone Investments, "STEC: Near-term ZeusIOPS Adoption Strong –
Secondary Blurs Future Prospects – FY10 Consensus Likely Too High –
Downgrading to Hold from Buy," August 4, 2009.

26 ⁵³ STEC, Inc., Q2 2009 - Earnings Conference Call, August 3, 2009.

27 ⁵⁴ I/B/E/S Thomson Reuters / First Call.

28 ⁵⁵ STEC Press Release filed as Form 8-K, August 3, 2009.

⁵⁶ STEC, Inc., Second Quarter 2009 Form 10-Q and Offering Prospectus both
filed August 3, 2009.

1 46. Based on STEC's positive announcements about the expected
2 continuing growth in ZeusIOPS sales to most of its major OEM customers in the
3 second half of the year, the repetition of the announcement of the EMC agreement,
4 and slightly higher second quarter earnings than expected, securities analysts
5 expected continuing upside to the sales of ZeusIOPS. ThinkEquity, for example,
6 raised its 2009 and 2010 earnings estimates and its stock price target for STEC,
7 stating in its report that it "believe[s] 2H09 should see continuing upside to the
8 consensus, with ramps outside EMC....with strength from the EMC ramp."⁵⁷ The
9 Capstone analyst also expected that sales of ZeusIOPS to IBM and other OEMs
10 would increase in the second half of 2009.⁵⁸

11 47. Thus, the negative news about the secondary offering was
12 counterbalanced by positive news about STEC's better-than-expected revenue and
13 earnings during the second quarter, and expected growth in ZeusIOPS sales to
14 most of its OEM customers during the second half of 2009. On balance, however,
15 I would expect the news about STEC on August 3-4, 2009 to elicit a negative stock
16 price reaction.

17 48. I have reviewed the media databases on Bloomberg, Investext, and
18 other news sources for STEC-related news articles published on August 3 and
19 August 4, 2009. I did not find any additional material news items regarding STEC
20 that received any news coverage on those days beyond the information discussed
21 in the preceding paragraphs. As a result of STEC's announcement regarding the
22 secondary offering and the subsequent analyst's stock downgrade, STEC's
23 common stock price fell 7.75% on August 4, 2009. (See Exhibit G.) I applied the
24 Modified Fama-French Three-Factor Model including the percentage change in the
25

26 ⁵⁷ ThinkEquity LLC, "STEC: Solid Quarter; Good Guidance; Raise Price
Target," August 4, 2009.

27 ⁵⁸ Capstone Investments, "STEC: Near-term ZeusIOPS Adoption Strong –
28 Secondary Blurs Future Prospects – FY10 Consensus Likely Too High –
Downgrading to Hold from Buy," August 4, 2009.

1 *Industry Index* as an explanatory variable. On August 4, 2009, the abnormal return
2 resulting from the news announcement was -7.77%, which is statistically
3 significant at the 10% level. Such a significance level means that there is less than
4 a 1 in 10 chance that the abnormal return happened by mere chance. In my
5 opinion, the relatively weak statistical significance of the negative stock price
6 reaction to the mix of news on August 3-4, 2009 is due to the mitigating impact of
7 the news regarding STEC's better-than-expected revenue and earnings during the
8 second quarter, and expected growth in ZeusIOPS sales to most of its OEM
9 customers during the second half of 2009.

10 **v. September 17, 2009**

11 49. Prior to the start of trading on September 17, 2009, Wedbush Morgan
12 Securities Inc. ("Wedbush") lowered its price target on STEC's common stock to
13 \$39 from \$45.⁵⁹ The price target reduction was a result of the firm's recent
14 industry research, which indicated a competitive landscape in the SATA/SAS
15 enterprise SSD market that was intensifying above the firm's previous
16 expectations. Wedbush's research indicated that one of the leading hard drive
17 original equipment manufacturers ("OEM") would likely introduce a competing
18 product in the fourth quarter of 2009. While the Wedbush securities analyst was
19 unclear about the exact timing of the release of the new product by the competitor,
20 the Wedbush securities analyst was "concerned STEC's 'window of opportunity'
21 to maintain a market leadership position and secure design wins at Tier 1 OEMs in
22 the SATA/SAS SSD enterprise market ahead of the competition may be closing."⁶⁰

23 50. I have reviewed the media databases on Bloomberg, Investext, and
24 other news sources for articles published on September 17, 2009 relating to STEC.

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26 ⁵⁹ The firm changed its name to Wedbush Securities Inc. from Wedbush Morgan
27 Securities Inc. in late 2009. Wedbush Securities Inc., "STEC Inc., Checks Indicate
28 Q3 Beat Likely in Cards; but Expect Changing Competitive Landscape to Pressure
Shares Downward," September 17, 2009.

⁶⁰ *Ibid.*

1 I did not find any additional material news items regarding STEC that received any
2 news coverage that day. As a result of the Wedbush analyst report regarding the
3 unexpected changes to the competitive landscape and the subsequent price target
4 reduction, STEC's common stock price decreased 16.81%. (See Exhibit G.) I
5 applied the Modified Fama-French Three-Factor Model, including the percentage
6 change in the Industry Index as an explanatory variable. On September 17, 2009,
7 the abnormal return resulting from the news announcement was 17.43%, which is
8 statistically significant at the 1% level. Such a significance level means that there
9 is less than a 1 in 100 chance that the abnormal return happened by mere chance.

10 **vi. November 3-4, 2009**

11 51. After the market closed on November 3, 2009, STEC filed its 2009
12 third quarter 10-Q report and held an earnings conference call with investors and
13 securities analysts. STEC reported third quarter revenue of \$98.3 million, which
14 was only slightly above its guidance of \$95 million to \$97 million.⁶¹ STEC
15 reported GAAP earnings per share of \$0.47 which was slightly higher than the
16 analysts' mean consensus for GAAP earnings per share of \$0.45.⁶² However,
17 STEC's projected revenue of \$101 million to \$103 million for the fourth quarter
18 was lower than the securities analysts' consensus forecast of \$106 million. In
19 addition, STEC disclosed during the earnings conference call that sales to other
20 OEM customers besides EMC were down.⁶³ In response to an analyst's question
21 about his expectation for the fourth quarter ZeusIOPS sales, CEO Manouch
22 Moshayedi stated that "the rest of the [ZeusIOPS] account did not come along as
23 fast as we had anticipated. So, therefore, their numbers were down."⁶⁴ STEC also
24 announced that there was an accumulation of inventory of ZeusIOPS storage
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26 ⁶¹ STEC Announces Third Quarter 2009 Results, November 3, 2009.

27 ⁶² I/B/E/S Thomson Reuters / First Call.

28 ⁶³ STEC, Inc., Q3 2009 - Earnings Conference Call, November 3, 2009.

⁶⁴ *Ibid.*

1 devices at EMC, STEC's major customer for this product. STEC disclosed in the
2 earnings release that "[w]e recently received preliminary indications that our
3 customer might carry inventory of our ZeusIOPS at the end of 2009 which they
4 will use in 2010,"⁶⁵ which contradicted its prior statements that EMC would be
5 purchasing roughly \$60 million of ZeusIOPS every quarter.

6 52. The news about excess inventory at EMC and the delayed growth in
7 business from other customers raised equity analysts' concerns, which led them to
8 focus on the inventory of ZeusIOPS devices in the Q&A session during the
9 earnings conference call. As a result of the negative news, most analysts lowered
10 their earnings estimates and their stock price targets for STEC, and some analysts
11 even lowered their ratings. Oppenheimer & Co., for example, downgraded STEC's
12 stock to "Perform" from "Outperform", stating in the analyst report that "the
13 disappointing ZeusIOPS sales were attributed to slower than expected sell-through
14 at EMC, and the lack of revenue contribution from any other customers,
15 particularly the highly expected IBM."⁶⁶ ThinkEquity LLC also downgraded its
16 rating from "Buy" to "Hold" based on its concerns about STEC's inventory risk.⁶⁷
17 The surprise regarding the buildup of ZeusIOPS inventory at STEC's main
18 customer was economically significant negative news, which I would expect to
19 lead to a negative stock price reaction.

20 53. I have reviewed the media databases on Bloomberg, Investext, and
21 other news sources for STEC-related news articles published on November 3 and
22 November 4, 2009. I did not find any additional material news items regarding
23 STEC that received any news coverage on those dates other than the earnings-
24 related news and the projected lower revenue due to the customer's inventory
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26 ⁶⁵ *Ibid.*

27 ⁶⁶ Oppenheimer & Co., "STEC Inc., No Smoking Gun, But Pistol-Whipped
Instead: Downgrading to Perform, \$21 PT," November 3, 2009.

28 ⁶⁷ ThinkEquity LLC, "STEC: Believe Competition and Pricing Imply More
Downside; Downgrade to Hold," November 4, 2009.

1 buildup. As a result of STEC's announcement regarding the weaker earnings
2 guidance due to the buildup of inventory of ZeusIOSPS at EMC and subsequent
3 analysts' downgrades, STEC's common stock price fell 38.92% on November 4,
4 2009. (See Exhibit G.) I applied the Modified Fama-French Three-Factor Model
5 including the percentage change in the *Industry Index* as an explanatory variable.
6 On November 4, 2009, the abnormal return resulting from the news announcement
7 was -39.45%, which is statistically significant at the 1% level. Such a significance
8 level means that there is less than a 1 in 100 chance that the abnormal return
9 happened by mere chance.

10 **vii. February 23-24, 2010**

11 54. After the market closed on February 23, 2010, STEC released its
12 fourth quarter 2009 earnings press release with revenue guidance of \$33 million to
13 \$35 million. This guidance was below investors' expectations by "as much as 53
14 percent".⁶⁸ STEC reported GAAP earnings per share of \$0.50, which was only
15 slightly above the analysts' mean consensus for GAAP earnings per share of
16 \$0.49.⁶⁹ During its subsequent earnings conference call, STEC disclosed that its
17 contract with EMC was a not a recurring higher volume contract as it had
18 previously implied, and as a result, STEC did not expect "any meaningful
19 production orders" from EMC during the first half of 2010.⁷⁰ In addition, STEC
20 also disclosed that its ZeusIOPS sales to its customers (other than EMC) were far
21 below their quarterly levels during the first half of 2009 and that STEC did not
22 expect to recover those sales in the first quarter 2010.⁷¹

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25 ⁶⁸ Associated Press, "STEC shares plunge on dismal 1Q revenue outlook,"
26 February 24, 2010.

⁶⁹ I/B/E/S Thomson Reuters / First Call.

27 ⁷⁰ Bloomberg L.P., "STEC Announces Fourth Quarter and Full-Year 2009
28 Results," February 23, 2010.

⁷¹ *Ibid.*

1 55. As a result of these disclosures, multiple securities analysts, including
2 analysts from J. P. Morgan and Deutsche Bank, lowered their stock price targets
3 for STEC. J. P. Morgan cited STEC's expectation of first quarter 2010 revenues of
4 only \$33-\$35 million as the reason for lowering its stock price target, noting that
5 STEC's estimates "implied a QoQ revenue decline of 66.4% and a YoY revenue
6 decline of 36.5%."⁷² In addition, the stock analysts from Deutsche Bank cited
7 STEC's disclosure that all of STEC's other customers combined would "not be
8 enough to offset lost EMC biz"⁷³ as a reason for lowering their stock price target.
9 The disclosures on February 23, 2010 were economically significant negative
10 news, which I would expect to elicit a negative stock price reaction.

11 56. I have reviewed the media databases on Bloomberg, Investext, and
12 other news sources for STEC-related news articles published between the dates of
13 February 23, 2010 and February 24, 2010. I did not find any additional material
14 news items regarding STEC that received any news coverage on these dates. As a
15 result of STEC's disclosures that its contract with EMC was not a recurring higher-
16 volume contract as it previously had implied, that all of STEC's other customers
17 combined could not make up for the purchases made by EMC under the EMC
18 agreement, and its substantially lower revenue guidance, STEC's common stock
19 price fell 23.4%."I applied the Modified Fama-French Three-Factor Model,
20 including the percentage change in the Industry Index as an explanatory variable.
21 On February 24, 2010, the abnormal return resulting from the news announcement
22 was -24.07%, which is statistically significant at the 1% level. Such a significance
23 level means that there is less than a 1 in 100 chance that the abnormal return
24 happened by mere chance.

25
26 ⁷² J. P. Morgan, "Downgrading to Neutral; Major Dwindraft in Outlook Derails
27 High-Growth Story," February 24, 2010.

28 ⁷³ Deutsche Bank, "F4Q-09 results: F1Q-10 worse than worst-case scenario,"
February 23, 2010.

1 **6. The Relationship between News Events and Security Price**
2 **Changes During the Control Period**

3 57. Although the above analysis demonstrates that the market for STEC's
4 common stock was efficient during the Class Period, I also tested the market
5 efficiency for dates outside the Class Period as a control period to buttress the
6 findings described above.

7 **i. November 17-18, 2008**

8 58. On November 17, 2008, STEC held its annual Analyst Day in New
9 York, where it announced that STEC was going to focus on enterprise SSDs as a
10 growth engine for the Company. For the third calendar quarter, STEC reported a
11 non-GAAP gross margin of 34.1% and a non-GAAP operating margin of 12.1%.
12 In presenting its margin estimates, STEC told securities analysts that it would need
13 a "very high" contribution from its ZeusIOPS product, which STEC said carried a
14 50-60% gross margin.⁷⁴ Additionally, STEC announced a \$10 million stock
15 buyback program, which would begin on November 19, 2008.

16 59. Based on STEC's announcements, several securities analysts, such as
17 those at Wachovia, revised their earnings estimates upward on the belief that STEC
18 would be able to "execut[e] on its core competency (i.e. focus on enterprise SSD
19 opportunities)."⁷⁵ The securities analyst from Wachovia estimated that "a 50%+
20 contribution from ZeusIOPS would be required" for STEC to achieve its projected
21 margin levels of 40%.⁷⁶ In addition, while securities analysts from Caris &
22 Company had lowered their price target from \$5.50 to \$3.75, they maintained their
23 "Average" rating and cited STEC's competitive positioning in SSDs, its stock
24 buyback program, and its "very well attended Analyst Day" as positive factors.⁷⁷

25 ⁷⁴ Wachovia, "Equity Research STEC, Inc.," November 17, 2008.

26 ⁷⁵ *Ibid.*

27 ⁷⁶ *Ibid.*

28 ⁷⁷ Caris & Company, "STEC, Inc. Well Attended Analyst Day; But With No
Near-term Positive Catalyst; Maintain 3*/Average and Lowering PT," November
18, 2008.

1 On balance, the news announced by STEC at its Analyst Day in New York was
2 economically significant positive news, which I would expect to elicit a positive
3 stock price reaction.

4 60. I have reviewed the media databases on Bloomberg, Investext, and
5 other news sources for STEC-related news articles published on November 17-18,
6 2008. I did not find any additional material news items regarding STEC that
7 received any news coverage on November 18 beyond the information discussed in
8 the preceding paragraph. As a result of STEC's announcement regarding its focus
9 on enterprise SSD and its stock buyback program, STEC's common stock price
10 rose 11.73% on November 18, 2008. (See Exhibit G.) I applied the Modified
11 Fama-French Three-Factor Model including the percentage change in the *Industry*
12 *Index* as an explanatory variable. On November 18, 2008, the abnormal return
13 resulting from the news announcement was 11.28%, which is statistically
14 significant at the 5% level. Such a significance level means that there is less than a
15 1 in 20 chance that the abnormal return happened by mere chance.

16 **ii. December 15-16, 2008**

17 61. After the market closed on December 15, 2008, STEC announced that
18 it would be lowering its revenue guidance to the range of \$55 million to \$59
19 million for the fourth quarter of 2008, as compared to securities analysts'
20 consensus of \$70.5 million.⁷⁸ STEC announced that it expected revenue for 2009
21 "to be under pressure" citing the severe current economic downturn and poor
22 visibility in its DRAM business.⁷⁹ STEC provided its revenue guidance for the
23 first quarter of 2009, with the expectation that revenues would range from \$42
24 million to \$50 million, as compared to securities analysts' consensus of \$64

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27 ⁷⁸ Bloomberg, L.P., "STEC Inc. - STEC lowers Q4 revenue to \$55M-\$59M from
28 ⁷⁹ *Ibid.* prior \$69M-\$72M," December 15, 2008.

1 million.⁸⁰ STEC also provided it revenue guidance for full year 2009, and
2 informed the market that it expected its revenues to range from \$200 million to
3 \$240 million, as compared to securities analysts' consensus forecast of \$289
4 million.⁸¹ In addition, the Company announced that it was "currently taking
5 measures" to reduce costs by \$4 million to \$8 million annually through the
6 transitioning of significant operations to Malaysia.⁸² On the morning of December
7 16, 2008, prior to the opening of the market, STEC announced the appointment of
8 Matthew Witte to the Board of Directors.⁸³

9 62. As a result of the negative news regarding STEC's lowered fourth
10 quarter guidance, a number of securities analysts reduced their estimates and stock
11 price targets for STEC. In addition, some securities analysts expressed concern
12 over the 2009 guidance STEC provided. A securities analyst at Caris & Company
13 stated that the first quarter and full year 2009 revenue ranges were "considerably
14 below the Street and our estimates."⁸⁴ A securities analyst at Deutsche Bank stated
15 that "Perhaps more ominous is the accelerating decline in 1Q09 (-18% q/q) and the
16 lack of any visibility."⁸⁵ Despite the positive news regarding increasing SSD
17 business, Deutsche Bank stated that it "expect[ed] the SSD market to become
18 increasingly competitive in 2009."⁸⁶

19 63. I have reviewed the media databases on Bloomberg, Investext, and
20 other news sources for articles published on December 15 and December 16, 2008
21 relating to STEC. I did not find any additional material news items regarding
22

23 ⁸⁰ Bloomberg, L.P., "STEC: STEC Inc Lowers revs guidance for Q4 below
24 consensus; guides Q1 and FY09 revs below consensus," December 15, 2008.

25 ⁸¹ *Ibid.*

26 ⁸² Bloomberg, L.P., "STEC Lowers Guidance for the Fourth Quarter of 2008,"
27 December 15, 2008.

28 ⁸³ Bloomberg, L.P., "STEC Appoints Matthew Witte to Board of Directors,"
December 16, 2008.

⁸⁴ Caris & Company, "Very Tough Macro Takes Wind Out of Sails; Lowers Q4
Revenue Guidance and Provides Somber 2009E Outlook," December 16, 2008.

⁸⁵ Deutsche Bank, "Lowers 4Q08 revenue guidance," December 15, 2008.

⁸⁶ *Ibid.*

1 STEC that received any news coverage on those days. As a result of the
2 announcements of lowered guidance for the fourth quarter 2009 and also for full
3 year 2009, STEC's common stock price fell 21.75% on December 16, 2008. (See
4 Exhibit G.) I applied the Modified Fama-French Three-Factor Model, including
5 the percentage change in the Industry Index as an explanatory variable. On
6 December 16, 2008, the abnormal return resulting from the news announcement
7 was -24.66%, which is statistically significant at the 1% level. Such a
8 significance level means that there is less than a 1 in 100 chance that the abnormal
9 return happened by mere chance.

10 **iii. March 12-13, 2009**

11 64. After the market closed on March 12, 2009, STEC announced its
12 fourth quarter and full year 2008 results and held an earnings conference call with
13 investors and securities analysts.⁸⁷ STEC reported fourth quarter revenue of \$57
14 million, which was slightly above the Street consensus of \$56.5 million.⁸⁸ STEC
15 also reported GAAP earnings per share of \$0.00, which, quarter over quarter, was
16 down compared to \$0.03 in fourth quarter 2007.⁸⁹ In its earnings release, STEC
17 informed the market that it had realized 44% quarter over quarter growth in its
18 ZeusIOPS enterprise SSD revenues, while it also realized a 63% quarter over
19 quarter drop in DRAM revenues due to a \$20 million order cancellation from
20 Cisco Systems, Inc. ("CSCO").⁹⁰

21 65. Despite STEC's lower revenues from the sales of DRAMs, securities
22 analysts reacted positively to the news that STEC was increasing its enterprise
23 SSD business, and the securities analysts raised their earnings estimates for STEC.
24 For example, the securities analysts from Oppenheimer & Co. raised their 2009
25

26 ⁸⁷ Bloomberg, L.P., "STEC Announces Fourth Quarter and Full-Year 2008
27 Results," March 12, 2009.

28 ⁸⁸ *Ibid.*

⁸⁹ *Ibid.*

⁹⁰ *Ibid.*

1 earnings per share ("EPS") estimate from \$0.09 to \$0.45 and their stock price
2 target from \$6 to \$9.⁹¹ The Oppenheimer securities analysts cited "the acceleration
3 of STEC's high-margin enterprise SSD business" as one of the major reasons for
4 increasing the estimates.⁹² Oppenheimer also kept STEC's rating at "Outperform"
5 and cited the accelerated growth in STEC's enterprise SSD business as the reason
6 for maintaining STEC's rating.⁹³ Securities analysts from Capstone Investments
7 also raised their stock price target for STEC from \$7 to \$10.⁹⁴ On balance, the
8 news about STEC's enterprise SSD business growth was economically significant
9 positive news, which I would expect to elicit a positive stock price reaction.

10 66. I have reviewed the media databases on Bloomberg, Investext, and
11 other news sources for STEC-related news articles published on March 12, 2009
12 and March 13, 2009. I did not find any additional material news items regarding
13 STEC that received any news coverage on March 12, 2009 and March 13, 2009
14 beyond the information discussed in the preceding paragraph. As a result of
15 STEC's announcement regarding the growth in its ZeusIOPS enterprise SSD
16 revenues, STEC's common stock price rose 18.55% on March 13, 2009. (See
17 Exhibit G.) I applied the Modified Fama-French Three-Factor Model including the
18 percentage change in the *Industry Index* as an explanatory variable. On March 13,
19 2009, the abnormal return resulting from the news announcement was 18.53%,
20 which is statistically significant at the 1% level. Such a significance level means
21 that there is less than a 1 in 100 chance that the abnormal return happened by mere
22 chance.

23
24
25 ⁹¹ Oppenheimer & Co., "STEC Inc., Enterprise SSD Business Taking Off,
26 Raising Estimates and PT," March 13, 2009.

27 ⁹² *Ibid.*

28 ⁹³ *Ibid.*

⁹⁴ Capstone Investments, "STEC Inc., STEC: March Guidance Suggests 15%
Sequential SSD Growth – Raising Target to \$10," March 13, 2009.

iv. May 11-12, 2009

67. After the market closed on May 11, 2009, STEC announced its first quarter 2009 results and held an earnings conference call with investors and securities analysts. STEC reported first quarter revenue of \$63.5 million, which was above STEC's revenue guidance of \$58 to \$60 million and was also above the securities analysts' consensus of \$59 million.⁹⁵ STEC also reported GAAP earnings per share of \$0.17, which exceeded STEC's GAAP earnings per share of \$0.05 in fourth quarter 2008.⁹⁶ In its earnings release, STEC informed the market that it expected an increase in ZeusIOPS revenues for the first half of 2009.⁹⁷

68. Securities analysts found this news not only hopeful, but so promising that they raised their earnings estimates for STEC. Analysts from Oppenheimer, for example, raised their 2009/2010 EPS estimate from \$0.45/\$0.89 to \$0.80/\$1.65 and their price target from \$9 to \$17, citing "revenue/GM expansion and lower cost structure" as the reason for increasing their estimates, among other reasons.⁹⁸ As Oppenheimer saw STEC "as the best growth story in [their] coverage space," they accordingly kept their rating of STEC's stock at "Outperform."⁹⁹ Securities analysts from Capstone Investments also increased their target price for STEC from \$13 to \$19, basing their analysis on the belief that "STEC offer[ed] investors pure-play investment in SSD expansion" and that STEC had "raised 1H09

⁹⁵ STEC Press Release filed as Form 8-K, "STEC Announces First Quarter 2009 Results – Company Surpasses Previous Revenue and EPS Guidance," May 11, 2009.

⁹⁶ Bloomberg, L.P., "STEC Inc. Earnings Teleconference STEC US," May 11, 2009.

⁹⁷ STEC Press Release filed as Form 8-K, "STEC Announces First Quarter 2009 Results – Company Surpasses Previous Revenue and EPS Guidance," May 11, 2009.

⁹⁸ Oppenheimer & Co., "STEC Inc., Best Growth Story in Our Space, Raising Estimates and PT," May 12, 2009.

⁹⁹ *Ibid.*

1 expectations for ZeusIOPs to \$65m vs. \$53m.”¹⁰⁰ On balance, the news about
2 –STEC’s revenue growth and the elimination of its backlog was economically
3 significant positive news, which I would expect to elicit a positive stock price
4 reaction.

5 69. I have reviewed the media databases on Bloomberg, Investext, and
6 other news sources for STEC-related news articles published on May 11, 2009 and
7 May 12, 2009. I did not find any additional material news items regarding STEC
8 that received any news coverage that day beyond the information discussed in the
9 preceding paragraph. As a result of STEC’s announcements about its backlog and
10 its increased guidance, STEC’s common stock price rose 30.90% on May 12,
11 2009. (See Exhibit G.) I applied the Modified Fama-French Three-Factor Model
12 including the percentage change in the *Industry Index* as an explanatory variable.
13 On May 12, 2009, the abnormal return resulting from the news announcement was
14 30.43%, which is statistically significant at the 1% level. Such a significance level
15 means that there is less than a 1 in 100 chance that the abnormal return happened
16 by mere chance.

17 **B. Application of the Elmer Krogman Factors to the Market for**
18 **STEC’s Common Stock**

19 70. In addition to the five Cammer factors, I also applied the three Elmer
20 Krogman factors to examine further the efficiency of the market for STEC’s
21 common stock during the Class Period.

22 **1. Market Capitalization**

23 71. During the Class Period, the quarterly average market capitalization of
24 STEC’s common stock ranged from \$356 million to \$1.5 billion. (See Exhibit I.)
25
26

27 ¹⁰⁰ Capstone Investments, “STEC Inc., STEC: March Delivers Beat and Raise
28 Quarter – SSD Growth Still Early In Adoption – Raising Target to \$19 from \$13,”
May 12, 2009.

1 72. The NASDAQ stock market is a large and liquid stock market.¹⁰¹ Its
2 infrastructure and participants allow it to provide a reliable, liquid, and efficient
3 market place.¹⁰² Its stringent listing standards insure that issuers are large enough
4 to facilitate a liquid market, and its regulations insure that material company
5 information is disclosed promptly to investors.¹⁰³ In general, to be listed on the
6 NASDAQ Global Select Market (formerly the NASDAQ National Market), the
7 market value of publicly held equity must exceed \$45 million.¹⁰⁴

8 73. STEC's common stock was traded on the NASDAQ. As Bromberg
9 stated:

10 [A]t a minimum, there should be a presumption –
11 probably conditional for class determination – that
12 certain markets are developed and efficient for virtually
13 all securities traded there: the New York and American
14 Stock Exchanges, the Chicago Board Options Exchange
15 and the Nasdaq National Market System.¹⁰⁵

16 STEC's listing on the NASDAQ Global Select Market is strong evidence that the
17 market for its common stock was efficient during the Class Period.

18 74. During the Class Period, STEC's common stock market capitalization
19 on average was almost 22 times as large as the \$45 million minimum for
20 NASDAQ Global Select Market listing. The median market capitalization for all
21 stocks traded on the NASDAQ ranged from \$134 million to \$163 million, during
22
23
24

25 ¹⁰¹ http://nasdaqomx.com/digitalAssets/74/74605_corporatefactsheet_us_na_0427.pdf and <http://nasdaqomx.com/listingcenter/usmarket/>, last accessed 11/15/2011.

26 ¹⁰² *Ibid.*

27 ¹⁰³ *Ibid.*

28 ¹⁰⁴ The NASDAQ Listing Standards and Fees, July 2010.

¹⁰⁵ *Cammer* at 1292, citing Bromberg.

1 the Class Period.¹⁰⁶ The market capitalization of STEC suggests that the market
2 for its common stock was liquid and efficient during the Class Period.

3 **2. Bid-Ask Spread**

4 75. During the Class Period, the average bid-ask spread for STEC's
5 common stock, according to Center for Research in Security Prices ("CRSP") data,
6 was 0.11% based on the daily bid and ask prices, and the median bid-ask spread
7 was 0.09%. (See Exhibit J.) For the calendar years 2009 and 2010, the average
8 bid-ask spread for all ordinary common shares traded on the NASDAQ was 2.09%,
9 and the median was 0.46%.¹⁰⁷ Thus, the average and median bid-ask spreads for
10 STEC's stock were below the average and close to the median, respectively, for all
11 NASDAQ common stocks in 2009 and 2010.

12 **3. Public Float**

13 76. During the Class Period, the percentage public float of STEC's
14 common stock, calculated as the number of shares outstanding less the number of
15 shares held by insiders divided by the number of shares outstanding, ranged from
16 49 percent to 77 percent. (See Exhibit I.) STEC's common stock was mainly held
17 by outside investors during the Class Period. Additionally, the quarterly average
18 market value of the public float for STEC's common stock ranged from \$173
19 million to \$864 million during the Class Period. (See Exhibit I.)

20 77. The size of the public float for STEC's common stock is consistent
21 with the hypothesis that the market for STEC's common stock was liquid and
22 efficient during the Class Period.

23
24
25 ¹⁰⁶ The market capitalization for the NASDAQ is based on the market
26 capitalization for all NASDAQ composite index members as reported by
Bloomberg L.P.

27 ¹⁰⁷ Based on data from the Center for Research in Security Prices (CRSP). The
28 data for the NASDAQ Stock Market consists of data from the NASDAQ Global
Select Market, NASDAQ Global Market and NASDAQ Capital Market.

1 **C. Additional Factors Considered**

2 78. In addition to the Cammer factors and the Elmer Krogman factors
3 discussed in the previous sections of this declaration, I also performed two sets of
4 additional tests for market efficiency that are described in the economics literature.
5 These tests can provide valuable insights into whether the market for a security is
6 efficient.¹⁰⁸ The additional tests I conducted are a) testing whether the put-call
7 parity relationship between STEC's common stock prices and the prices of the call
8 options and put options on STEC's common stock was satisfied during the Class

9
10 ¹⁰⁸ This literature includes Ofek, Eli, Matthew P. Richardson, and Robert F.
11 Whitelaw, "Limited Arbitrage and Short Sales Restrictions: Evidence from the
12 Options Markets," *Journal of Financial Economics*, 74, 2004, pages 305-342;
13 Evans, Richard B., Christopher C. Gezvy, David K. Musto, and Adam V. Reed,
14 "Failure is an Option: Impediments to Short Selling and Option Prices," *Review of*
15 *Financial Studies*, 22, 2009, pages 1955-1980; Battalio, Robert, and Paul Schultz,
16 "Options and the Bubble," *Journal of Finance*, 2006, pages 2071-2102; Fama,
17 Eugene, "The Behavior of Stock Prices," *Journal of Business*, 38, 1965, pages 34-
18 105; Elton, Edwin J., Martin J. Gruber, Stephen J. Brown, and William N.
19 Goetzmann, *Modern Portfolio Theory and Investment Analysis*, 6th ed., John
20 Wiley & Sons, Inc., Hoboken, NJ, 2003; Fama, Eugene F. and Kenneth R.
21 French, "Permanent and Temporary Components of Stock Prices," *Journal of*
22 *Political Economy*, 96, 1988, pages 246-273; Dufour, Jean-Marie, Y. Lepage, and
23 H. Zeidan, "Nonparametric Testing for Time Series: A Bibliography," *Canadian*
24 *Journal of Statistics*, 10, 1982, pages 1-38; Mittsdorffer, R., and J. Diederich,
25 "Prediction of First Day Returns of Initial Public Offering in the US Stock Market
26 Using Rule Extraction from Support Vector Machines," *Studies in Computational*
27 *Intelligence (SCI)*, 80, 2008, pages 185-203; Hunsader, Kenneth J., "Two Essays
28 on the Strategic Aspects of Information Release," Doctoral Dissertation, Florida
State University, Spring 2005; Luger, Richard, "Exact Nonparametric Tests for a
Random Walk With Unknown Drift Under Conditional Heteroscedasticity,"
Research Department, Bank of Canada, pages 2 - 3; Campbell, B., and Jean-Marie
Dufour, "Exact Nonparametric Orthogonality and Random Walk Tests," *Review of*
Economics and Statistics, 77, February 1995, pages 1-16; Boehmer, Ekkehart and
Eric K. Kelley, "Institutional Investors and the Informational Efficiency of Prices,"
Review of Financial Studies, 22, 2009, pages 3563-3594; Boehmer, Ekkehart,
Charles M. Jones, and Xiaoyan Zhang, "Which Shorts Are Informed?," *Journal of*
Finance, 63, pages 491-527; Boehmer, Ekkehart and Juan Wu, "Short Selling and
the Informational Efficiency of Prices," Working Paper, University of Oregon,
September 2009, pages 1-50; Klemkosky, Robert C. and Bruce G. Resnick, "Put-
Call Parity and Market Efficiency," *Journal of Finance*, 34, December 1979, pages
1141-1155; Bris, Arturo, William N. Goetzmann, and Ning Zhu, "Efficiency and
the Bear: Short Sales and the Markets Around the World," *Journal of Finance*, 62,
June 2007, pages 1029-1079; and Elyasiani, Elyas, Shmuel Hauser, and Beni
Lauterbach, "Market Response to Liquidity Improvements: Evidence from
Exchange Listings," *Financial Review*, 41, 2000, pages 1-14.

1 Period and b) performing random walk tests to investigate whether it would be
2 possible for investors to predict future stock returns from past stock returns, which
3 cannot happen in an efficient market.

4 **1. Put-Call Parity Tests**

5 79. Put-call parity expresses a relationship between the prices of a
6 company's put and call options and the price of its common stock. *Put-call parity*
7 should hold in an efficient capital market.¹⁰⁹ Testing whether put-call parity holds
8 can assist in assessing whether the market for a company's common stock and the
9 market for options on its common stock are efficient. Put-call parity tests are joint
10 tests of the efficiency of the markets for the stock and for the options written on the
11 stock.

12 80. A holder of an equity call option has the right to purchase the
13 underlying stock at a specified strike price, or exercise price. A holder of an equity
14 put option has the right to sell the underlying stock at a specified exercise price. If
15 put-call parity holds, then the price of a put option ("P") with a particular strike
16 price and expiration date will equal the price of a call option ("C") with the same
17 strike price and expiration date minus the price of the underlying stock ("S₀") plus
18 the present value of the exercise price ("PV(X)") plus the present value of the
19 dividends on the underlying common stock expected to be paid during the
20 remaining duration of the options ("PV(dividends)"), or in equation form:

21
$$P = C - S_0 + PV(X) + PV(\text{dividends}). \quad (\text{Equation 3})$$

22 81. In this equation, the put and call options must have the same exercise
23 price and expiration date. Rearranging this equation to express the share price
24 produces the following equation:

25 ¹⁰⁹ Ofek, Eli, Matthew P. Richardson, and Robert F. Whitelaw, "Limited
26 Arbitrage and Short Sales Restrictions: Evidence from the Options Markets,"
27 *Journal of Financial Economics*, 74, 2004, pages 305-342, and Evans, Richard B.,
28 Christopher C. Gezvy, David K. Musto, and Adam V. Reed, "Failure is an Option:
Impediments to Short Selling and Option Prices," *Review of Financial Studies*, 22,
2009, pages 1955-1980.

$$S_o = C - P + PV(X) + PV(dividends). \quad (\text{Equation 4})$$

82. If this relationship does not hold,¹¹⁰ which is commonly referred to as a put-call parity violation, arbitrageurs should be able to earn riskless profits by buying the relatively cheap assets and selling the relatively expensive ones. Such arbitrage opportunities generally do not occur (except possibly for very short periods of time) in an efficient market. Academics have argued that in certain situations, short sale restrictions have limited the ability of arbitrageurs to take advantage of the mispricing of assets.¹¹¹ In particular, it has been argued that if investors are limited in their ability to sell the stock short, there will be a tendency for the share price on the left-hand side of Equation 4 to be greater than the sum of the elements on the right-hand side, in which case the stock will be overpriced.

83. First, I investigated whether there is any evidence that might indicate whether short-sale constraints might have impeded an efficient market for STEC's common stock during the Class Period.¹¹² For NASDAQ stocks, the average short interest as a percentage of shares outstanding was 3.5% during the Class Period.¹¹³ STEC's average short interest as a percentage of the shares outstanding during the Class Period was 24.8%. (See Exhibit K.)

84. The put-call parity test results will indicate whether any short-sale effects were strong enough to induce significant violations of put-call parity in the

¹¹⁰ This relationship is referred to as put-call parity. When put-call parity exists, the price of the firm's common stock, which is on the left-hand side of the equal sign in Equation 4, equals the sum of the variables on the right-hand side of the equal sign, which means that the combination of items produces exactly the same value as the share of common stock.

¹¹¹ Ofek, Eli, Matthew P. Richardson, and Robert F. Whitelaw, "Limited Arbitrage and Short Sales Restrictions: Evidence from the Options Markets," *Journal of Financial Economics*, 74, 2004, pages 305-342, and Evans, Richard B., Christopher C. Gezvy, David K. Musto, and Adam V. Reed, "Failure is an Option: Impediments to Short Selling and Option Prices," *Review of Financial Studies*, 22, 2009, pages 1955-1980.

¹¹² Battalio, Robert, and Paul Schultz, "Options and the Bubble," *Journal of Finance*, 2006, pages 2071-2102.

¹¹³ The short interest for the NASDAQ is based on the short interest for all NASDAQ composite index members as reported by Bloomberg L.P.

1 market for STEC's common stock during the Class Period. As long as there are
2 sufficient shares available to borrow, an above-average level of short interest will
3 not give rise to market inefficiency. The put-call parity tests, which I perform
4 next, test whether STEC's share price traded above where it would be expected to
5 trade in a market with effective short selling.

6 85. Using option pricing data obtained from the OptionMetrics database
7 and common stock pricing data obtained from Bloomberg, L.P., I was able to
8 examine whether put-call parity held for STEC's common stock during the Class
9 Period.¹¹⁴ When put-call parity holds, the share price satisfies the equilibrium
10 relationship stated earlier in this section, and it may be concluded that short selling
11 is not being restricted. I matched calls and puts based on their exercise prices and
12 expiration dates. I took the average of the best last bid and best last ask quotes to
13 estimate the prices of the calls and puts. For the price of STEC's common stock, I
14 used the common stock's last traded price. Dividends were set equal to the
15 expected dividends received during the life of the option. The dividends and the
16 exercise price were discounted using interpolated yields on risk-free rates obtained
17 from the OptionMetrics database. To improve the quality of the data, I deleted
18 options with fewer than six calendar days to maturity or greater than 180 calendar
19 days to maturity and options with a price less than \$0.375.¹¹⁵

20 86. After applying these filters, I was left with 5,510 pairs and a total of
21 1,589,826 put option and call option contracts. I calculated the put-call parity
22 violation for each of these pairs using the following equation:

$$\text{Put - Call Parity Violation} = \frac{[S_o - C + P - PV(X) - PV(\text{dividends})]}{S_o} \quad (\text{Equation 5})$$

25 ¹¹⁴ Option market makers generally change their bid and ask quotes each time
26 the underlying stock price changes. Consequently, there are bid and ask quotes
27 regardless of the number of options contracts traded each day. Bid and ask quotes
28 come from the NBBO (National Best Bid and Offer) data.

¹¹⁵ These filters were applied in Evans, Richard B., Christopher C. Gezvy, David
K. Musto, and Adam V. Reed, "Failure is an Option: Impediments to Short Selling
and Option Prices," *Review of Financial Studies*, 22, 2009, page 1960.

1 Exhibit L shows the results for the put-call parity violation calculations for STEC
2 on a monthly basis between June 2009 and February 2010.

3 87. Although the OptionMetrics database can be considered one of the
4 best publicly available databases for options pricing data, some researchers have
5 found that the option prices from the database have the potential to exaggerate the
6 frequency of put-call parity violations.¹¹⁶ Even after considering the potential for a
7 higher frequency of put-call parity violations from the pricing data, I found that the
8 average put-call parity violation for STEC's stock and options during the Class
9 Period was only 0.632%. (See Exhibit L, Panel A.) The average STEC put-call
10 parity violation is within the range of what is found in published academic
11 research. The authors of "Failure is an Option: Impediments to Short Selling and
12 Option Prices" found that the average put-call parity violation for 4.5 million pairs
13 traded during 1998 and 1999 was 0.36% and that the standard deviation was
14 1.79%.¹¹⁷ Thus, the range between minus one standard deviation and plus one
15 standard deviation extends from -1.43% to 2.15%. The average monthly put-call
16 parity violation falls outside this range only once, for part of February 2010, which
17 is the last month in the Class Period. The overall results of this test support the
18 efficiency of the market for STEC's common stock during the Class Period.

19 88. The authors of "Limited Arbitrage and Short Sales Restrictions:
20 Evidence from the Options Markets" analyzed 80,614 option pairs between July
21 1999 and November 2001.¹¹⁸ They measured put-call parity violations by
22 calculating the ratio $\frac{S - S^*}{S}$, where S is the stock price and S* is the price predicted by
23

24 ¹¹⁶ Battalio, Robert, and Paul Schultz, "Options and the Bubble," *Journal of*
25 *Finance*, 2006, page 2086.

26 ¹¹⁷ Evans, Richard B., Christopher C. Gezvy, David K. Musto, and Adam V.
27 Reed, "Failure is an Option: Impediments to Short Selling and Option Prices,"
Review of Financial Studies, 22, 2009, pages 1955-1980.

28 ¹¹⁸ Ofek, Eli, Matthew P. Richardson, and Robert F. Whitelaw, "Limited
Arbitrage and Short Sales Restrictions: Evidence from the Options Markets,"
Journal of Financial Economics, 74, 2004, pages 305-342.

1 put and call option prices. The average R for their sample was 0.30. The average
2 R for my sample of STEC pairs is 0.6370. (See Exhibit L, Panel B.) The
3 interquartile range for this ratio (25th percentile to the 75th percentile) in the
4 aforementioned study extends from -0.16 to 0.65.¹¹⁹ The average R of 0.6370 is
5 within this range. While the February 2010 monthly average falls outside the 90%
6 confidence band, which extends from -1.22 to 1.97, the month in question is again
7 the last month in the Class Period, and the overall results of this test support the
8 efficiency of the market for STEC's common stock during the Class Period.

9 89. The test results reported in Exhibit L show that the put-call parity
10 relationship held for STEC's common stock throughout the Class Period, again
11 with the lone exception being part of February 2010, the last month in the Class
12 Period.

13 90. I also examined the average absolute value of Put-Call Parity
14 Violations, which was 0.730% for the "Failure is an Option" method (see Exhibit
15 L, Panel A) and 0.7354% for the "R" method (see Exhibit L, Panel B.) The
16 average bid-ask spread for the 5,510 pairs of call and put options written on
17 STEC's common stock was 17.375% during the Class Period. Thus, an average
18 absolute value of 0.730% or 0.7354% for the Put-Call Parity Violations is very
19 reasonable in light of the much greater average bid-ask spreads for call and put
20 options and is consistent with the market for STEC's common stock and the
21 market for STEC's call options and put options both being efficient during the
22 Class Period. (See Exhibit L.)

23 91. I also examined put-call parity for those options that were trading
24 "near the money."¹²⁰ These options had exercise prices near the price of the
25

26 ¹¹⁹ *Ibid.*, page 316.

27 ¹²⁰ The sample was restricted to those pairs for which $-0.1 < \ln(S_0/\text{Exercise Price}) < 0.1$. This filter is discussed in Ofek, Eli, Matthew P. Richardson, and
28 Robert F. Whitelaw, "Limited Arbitrage and Short Sales Restrictions: Evidence from the Options Markets," *Journal of Financial Economics*, 74, 2004, page 340.

1 common stock. The results from this sub-sample are consistent with the results for
2 the overall sample. The Average Put-Call Parity Violation was 0.474% for the
3 "Failure is an Option" method, which is near the mean of 0.36%, and the Average
4 Absolute Value Put-Call Parity Violation was 0.539% which is within one standard
5 deviation of the mean. These test results are consistent with market efficiency for
6 STEC's common stock during the Class Period. (See Exhibit L.)

7 92. The fact that the Put-Call Parity relationship held throughout the Class
8 Period suggests that STEC's common stock price fairly reflected its intrinsic value,
9 as would be expected in an efficient market.¹²¹ This is further evidence that the
10 market for STEC's common stock was efficient during the Class Period.

11 2. Random Walk Tests

12 93. Common stock returns follow what is known as a random walk in an
13 efficient market.¹²² Stock prices in an efficient market move from moment to
14 moment much like bubbles in a glass of soft drink; that is, when stock returns
15 follow a random walk, stock price movements are independent from moment to
16 moment. Accordingly, the returns on the stock each day are identically distributed,
17 and investors cannot use past stock price movements to predict the next day's stock
18 price movement.¹²³

19 94. I performed two types of tests, parametric tests and non-parametric
20 tests, to examine whether the random walk hypothesis could be rejected for
21 STEC's common stock during the Class Period. Parametric tests examine whether
22

23 ¹²¹ Ofek, Eli, Matthew P. Richardson, and Robert F. Whitelaw, "Limited
24 Arbitrage and Short Sales Restrictions: Evidence from the Options Markets,"
25 *Journal of Financial Economics*, 74, 2004, pages 305-342, and Evans, Richard B.,
26 Christopher C. Gezvy, David K. Musto, and Adam V. Reed, "Failure is an Option:
27 Impediments to Short Selling and Option Prices," *Review of Financial Studies*, 22,
28 2009, pages 1955-1980.

26 ¹²² Fama, Eugene, "The Behavior of Stock Prices," *Journal of Business*, 38,
27 1965, pages 34-105.

27 ¹²³ Elton, Edwin J., Martin J. Gruber, Stephen J. Brown, and William N.
28 Goetzmann, *Modern Portfolio Theory and Investment Analysis*, 6th ed., John
Wiley & Sons, Inc., Hoboken, NJ, 2003, page 405.

1 there is any serial correlation evident in day-to-day stock returns.¹²⁴ Parametric
2 tests make certain assumptions about the stock returns that are inconsistent with
3 actual stock returns. For example, the conventional regression test makes the
4 assumption that the errors around the fitted regression line are normally
5 distributed. The normal probability distribution allows for outcomes between
6 negative and positive infinity.¹²⁵ However, stock returns are bounded below by
7 returns of -100%, since stock prices cannot fall below zero. Consequently, the
8 basic assumption underlying the conventional regression test does not strictly fit
9 the data, even though it is usually a reasonable approximation. On the other hand,
10 non-parametric tests are distribution-free and thus may be considered more
11 appropriate when performing random walk tests to examine market efficiency.¹²⁶
12 In an abundance of caution, I ran both types of tests.

13 95. I ran two non-parametric statistical sign tests, the McNemar test and
14 the Wilcoxon signed-rank test, to investigate whether the returns on STEC's
15 common stock followed a random walk during the Class Period. There is an
16 extensive financial literature on the use of non-parametric sign tests to examine
17 evidence of a random walk in stock returns.¹²⁷ As I have noted, in an efficient
18 market, the stock price follows a random walk. Consequently, the returns on
19 successive days are independent of one another, and the probability of an increase
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21 ¹²⁴ Fama, Eugene F. and Kenneth R. French, "Permanent and Temporary
22 Components of Stock Prices," *Journal of Political Economy*, 96, 1988, pages 246-
273. When serial correlation is present, day-to-day stock price movements are not
23 independent, but instead, are systematically related in some manner.

24 ¹²⁵ There is an extensive academic literature that furnishes evidence that stock
25 returns are not normally distributed. One of the most often cited papers in this
26 literature is Fama, Eugene, "The Behavior of Stock Prices," *Journal of Business*,
38, 1965, pages 34-105.

27 ¹²⁶ One drawback of the non-parametric tests I performed is that the tests can
28 only detect 1-day lag serial correlation. Therefore, I also performed parametric
tests to confirm the results of the non-parametric tests and to test for the existence
of serial correlation lags of up to five days.

27 ¹²⁷ For a survey of this literature, see Dufour, Jean-Marie, Y. Lepage, and H.
Zeidan, "Nonparametric Testing for Time Series: A Bibliography," *Canadian
Journal of Statistics*, 10, 1982, pages 1-38.

1 in price and the probability of a decrease in price should be equal and independent
2 of past returns. However, as pointed out by Professor Eugene Fama in his seminal
3 paper on the behavior of stock prices, "Now in fact we can probably never hope to
4 find a time series [of stock prices] that is characterized by perfect independence.
5 Thus, strictly speaking, the random walk theory cannot be a completely accurate
6 description of reality. For practical purposes, however, we may be willing to
7 accept the independence assumption of the model as long as the dependence in the
8 series of successive price changes is not above some 'minimum acceptable'
9 level."¹²⁸

10 96. The McNemar test is used to determine whether there is an equal
11 probability that a positive (negative) return today is followed by a negative
12 (positive) return tomorrow.¹²⁹ In an efficient market where stock prices exhibit a
13 random walk, the probabilities of both events happening should be the same. As
14 shown in Panel A of Exhibit M, during the Class Period, there are 43 observations
15 where a positive return one day is followed by a negative return the next day and
16 also 43 observations where a negative return one day is followed by a positive
17 return the next day. The McNemar Statistic, revised to correct for discontinuity, is
18 0.0116 with a p-value of 0.9141. Therefore, the null hypothesis that the
19 probabilities of a positive (negative) return one day followed by a negative
20 (positive) return the next day are equal cannot be rejected. Simply, an investor
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22

23 ¹²⁸ Fama, Eugene, "The Behavior of Stock Prices," *Journal of Business*, 38,
24 1965, page 35.

25 ¹²⁹ Mittsдорffer, R., and J. Diederich, "Prediction of First Day Returns of Initial
26 Public Offering in the US Stock Market Using Rule Extraction from Support
27 Vector Machines," *Studies in Computational Intelligence* (SCI), 80, 2008, pages
28 185-203; Hunsader, Kenneth J., "Two Essays on the Strategic Aspects of
Information Release," Doctoral Dissertation, Florida State University, Spring
2005; and Dufour, Jean-Marie, Y. Lepage, and H. Zeidan, "Nonparametric Testing
for Time Series: A Bibliography," *Canadian Journal of Statistics*, 10, 1982, pages
1-38.

1 cannot profit on one day solely by knowing the return of the stock the previous
2 day.

3 97. The second non-parametric random walk test I performed is the
4 Wilcoxon signed-rank test.¹³⁰ It examines whether there is an equal probability
5 that a positive (negative) return one day is followed by a negative (positive) return
6 the next day. This test is different from the McNemar Test because it accounts for
7 both the direction and the magnitude of the return changes. The median difference
8 between consecutive daily returns should be zero in a random-walk time series. As
9 shown in Panel B of Exhibit M, during the Class Period, the Wilcoxon signed-rank
10 test t-statistic is 0.1894, and the p-value is 0.8498. Therefore, the null hypothesis
11 that the median difference in consecutive daily returns is zero cannot be rejected.
12 These results are consistent with a random walk time series of STEC stock prices
13 and support the hypothesis that STEC's common stock traded in an efficient
14 market during the Class Period.

15 98. The time series of STEC stock returns should not exhibit any serial
16 correlation in an efficient market. In addition to the two non-parametric tests I just
17 described, I ran two sets of parametric tests, regression tests for serial correlation
18 between STEC's common stock daily raw returns and prior day raw returns and the
19 Portmanteau test (Q-Test), to examine whether there is any serial correlation
20 evident in STEC's common stock returns during the Class Period. For each set of
21 tests, I examined both STEC's common stock raw returns and the excess returns
22 from the Modified Fama-French Three-Factor Model.

23

24

25

26 ¹³⁰ Luger, Richard, "Exact Nonparametric Tests for a Random Walk With
27 Unknown Drift Under Conditional Heteroscedasticity," Research Department,
28 Bank of Canada, pages 2-3; and Campbell, B., and Jean-Marie Dufour, "Exact
Nonparametric Orthogonality and Random Walk Tests," *Review of Economics and
Statistics*, 77, February 1995, pages 1-16.

1 99. In performing the autocorrelation test, I first regressed STEC's raw
2 returns on the stock's prior day returns. I found that the test result was not
3 significant at the 10% level. (See Exhibit N, Panel A.)

4 100. Next, I also regressed STEC's residuals (or excess returns) for the
5 Class Period estimated from the Modified Fama-French Three-Factor Model on the
6 stock's prior day residuals. I ran the regressions for STEC's residuals (or excess
7 returns), just as I did the regressions based on raw returns. I found that the test
8 result was not significant at the 10% level. (See Exhibit N, Panel A.)

9 101. Thus, these tests do not furnish evidence of statistically significant
10 serial correlation for the Class Period. The test results are consistent with market
11 efficiency; both test results indicate that the pattern of returns for STEC's common
12 stock is consistent with a random walk during the Class Period.

13 102. The Portmanteau test (or Q-Test) I performed examines whether there
14 is any serial correlation between STEC's common stock returns and its prior daily
15 returns based on one-day to five-day lags. Using STEC's raw returns, I found that
16 the p-values of the raw returns are in excess of 0.10 for each of the one-day to five-
17 day lags. Thus, these test results do not support the hypothesis of serial correlation
18 between returns with lags of five days or less. (See Exhibit N, Panel B.) The
19 Portmanteau test of the raw returns does not detect any statistically significant
20 serial correlation during the Class Period.

21 103. I reran the Portmanteau test on STEC's excess returns. I found that
22 the p-values of the raw returns are in excess of 0.10 for each of the one-day to five-
23 day lags. Thus, these test results also do not support the hypothesis of serial
24 correlation between returns with lags of five days or less. (See Exhibit N, Panel
25 B.) Consequently, based on the results of the non-parametric and parametric tests,
26 I believe that it is reasonable to conclude that there is no significant serial
27 correlation evident in STEC's common stock returns during the Class Period.

28 None of the tests conducted has produced evidence of serial correlation that would

1 contradict market efficiency for STEC's common stock. It is my opinion that the
2 hypothesis that STEC's common stock returns followed a random walk during the
3 Class Period, which would be indicative of an efficient market, cannot be rejected.

4 **V. Conclusions**

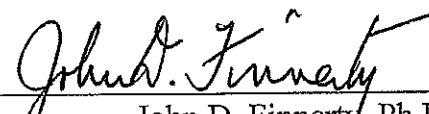
5 104. It is my opinion that the market for STEC's common stock was open,
6 developed, and efficient during the Class Period.

7 105. This opinion is based on the common stock's high volume of trading,
8 the large number of securities analysts following STEC and its common stock
9 coupled with a regular flow of company-specific information, the presence of a
10 large number of market makers, the substantial number of STEC's common shares
11 held and traded by institutional investors, STEC's eligibility to file registration
12 statements on Form S-3, the demonstrable cause-and-effect relationship between
13 the release of STEC-specific news and the prompt price reactions of STEC's
14 common stock price, STEC's large market capitalization and large public float, the
15 fact that STEC's common stock traded on the highly liquid NASDAQ throughout
16 the entire Class Period with reasonably sized bid-ask spreads, and the evidence that
17 STEC's common stock returns followed a random walk during the Class Period.

18 106. My analysis is based on the materials I have reviewed to date. I
19 reserve the right to amend my opinion and file a supplemental declaration in this
20 matter should I obtain any other significant information that leads me to change
21 any of the opinions expressed in this declaration. To the extent this matter is
22 adjourned for any reason, I further reserve the right to supplement this declaration.

23
24 I declare under penalty of perjury that the foregoing is true and correct to the
25 best of my knowledge.

26 Executed: November 21, 2011

27 
28 John D. Finnerty, Ph.D.